

Applicant respectfully maintains his position with respect to the 35 U.S.C. §§102, 103 and provides the following clarifying discussion. The use of reference characters below is provided solely for clarification of a particular embodiment and is not intended as limiting the invention in any way.

5 **35 U.S.C. §102(b), Claims 1, 2, 4, 6-8 and 9 Anticipation by Yamaguchi**

3. *The Examiner has not met the burden of showing anticipation of claim 1 (and those that depend from it) by Yamaguchi because Yamaguchi does not show the identical invention in as complete of detail as shown in the claim, namely the semiconductor switch, the temperature sensor, and the charge carrier detector as*
10 *required by claim 1.*

According to the MPEP 2131, which identifies the standard used for anticipation under 35 U.S.C. §102, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." [citing *Verdegaal Bros. v. Union Oil Co. of California*, 2, 15 USPQ2d 1051, 1053 (Fed. Cir. 1987)]. MPEP 2131 goes on to state, "The identical invention must be shown in as complete detail as is contained in the ... claim." [citing *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).]

It is on this last portion that the anticipation standard has not been met, particularly the phrase "*as complete detail as is contained in the claim*".

20 During the telephone interview, Applicant sought clarification from the Examiner relating to how the elements of Yamaguchi were being equated to the present invention.

Applicant originally asserted that Fig. 4A of Yamaguchi could not be used to anticipate claim 1 of the present invention because it lacked "a semiconductor
25 switch element formed of a plurality of cells connected in parallel and including an

integrated reverse diode". Although the Examiner had only referenced Yamaguchi's Fig. 4A with respect to claim 1 in the last Office Action, the Examiner referenced Fig. 4B during the telephone interview in order to find all of the elements present in claim 1.

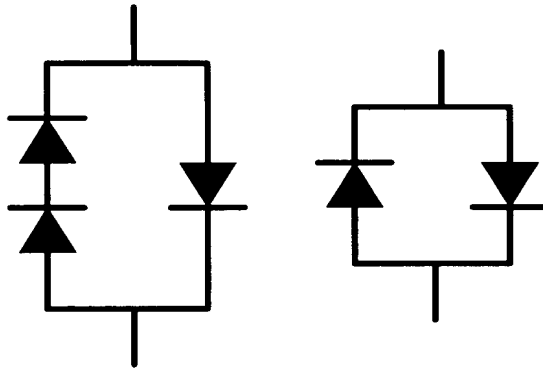
5 The Examiner indicated that he interpreted Yamaguchi as follows. Referring to Fig. 4B of Yamaguchi, the Examiner equated the following elements of Yamaguchi to those of claim 1:

Claim 1 element	Yamaguchi
Charge carrier detector	FET 13
Semiconductor switch element	Diode element 22 + one or two of diodes 21
Temperature sensor	diode elements 21 + 22 combined

Applicant does not disagree with the Examiner's characterization of diode elements 21 + 22 combined being equated to the temperature sensor of the present invention. However, Applicant does not believe that the charge carrier detector of the present invention can be equated to Yamaguchi's FET 13, nor can Yamaguchi's combination of diode element 22 + diode elements 21 be equated to a semiconductor switch element.

15 3.1 *Elements 21 + 22 combined do not constitute a "switch", but rather are a part of the temperature sensor.*

Applicant asked how diode element 22 in combination with one or two of diodes 21 could be equated to a "switch" and the Examiner replied that these devices can operate as a switch by virtue of the fact that they can be in a state of being "on" and "off" depending on voltages and polarity provided. Applicant respectfully disagrees with this definition. Applicant knows of no definition in the literature that construes either of the following configurations



as a "switch", as the Examiner is asserting, and Applicant does not believe that one of ordinary skill in the art would construe these structures as "switches". The Examiner is requested to provide a reference indicating that above configuration
5 as representing a "switch".

Yamaguchi clearly indicates the operation of FET 13 as the switch element at 5/25-27, "[the voltage drop] is detected at the detection end to provide a temperature signal to the FET control signal, where it is processed to **turn off the FET 13** if the signal represents a critical temperature" [emphasis added]. Nowhere in Yamaguchi
10 can a teaching of the diodes according to the above structure acting as a switch be found. The Examiner is requested to provide an indication in Yamaguchi showing operation of such a structure of diodes as "switches".

Furthermore, the Examiner cannot be equating a structure having all three of Yamaguchi's Fig. 4B diodes on the left-hand side as a "switch" in accordance with
15 the present invention, because then the Examiner would be equating an identical element of Yamaguchi with both the present invention's "switch" and "temperature sensor", effectively ignoring a separately called out element of the present invention, which is impermissible under 35 U.S.C. §102.

Finally, this definition of a switch appears to be inconsistent with the language
20 used in the last Office Action on p. 3, where in the second paragraph, the Examiner

indicates, "Regarding claim 1, in figures 3 and 4, Yamaguchi discloses a semiconductor device 4A, and a **MOS transistor 13 in parallel** with the temperature sensing circuit 20..."

The only place "parallel" is used in the present invention is to describe the structure of the semiconductor switch element—and the Examiner clearly indicates the presence of Yamaguchi's MOS transistor 13 in describing the "parallel" structure.

Clearly the Examiner originally interpreted the MOS transistor 13 of Yamaguchi with being the "switch", which is consistent with Yamaguchi's own description of the device's operation.

If the Examiner maintains, in the next office action, this interpretation of the switch element, then the Examiner is requested to explain how the semiconductor switch is temperature protected, as the switch that is being protected (according to this interpretation) would have to be a part of the temperature sensing device used to protect the switch. In other words, the temperature sensing device is protecting some arbitrary subset of itself.

3.2 The FET 13 of Yamaguchi does not inherently operate as a charge carrier detector that generates a signal.

In the Office Action, the Examiner stated on p. 4, paragraph 9, that:

The applicant argues that [sic: the] Yamaguchi reference does not teach a device that produces the tow [sic] signals of the disclosed claimed invention. This is not persuasive, since it is an inherent function of MOS transistor 13 to create a signal in the event of free charge carrier occurrence. Furthermore, temperature sensor 20 will generate a second signal.

Applicant respectfully disagrees that a MOS transistor inherently generates a signal in the presence of free charge carriers in the semiconductor body. The Examiner is requested to provide a reference indicating such an inherent property of

the charge carrier detector, or some indication in the Yamaguchi reference itself that the FET 13 operates in this manner.

Furthermore, this construction presumes an operation of a problem that the present invention is specifically designed to resolve, i.e., preventing an erroneous
5 temperature signal.

According to the invention (p. 2), a problem results in that free charge carriers can be created by operation of the temperature sensor. These free charge carriers can mislead the temperature sensor into assuming it has detected an excess temperature and thus erroneously indicating a temperature overload via a signal. In
10 the present invention, the presence of a separate charge carrier detector prevents such an erroneous detection. To suggest that the charge carrier detector protects some part of the temperature sensing device itself completely misconstrues the invention as a whole.

In summary, the present invention requires the presence of four elements
15 (the semiconductor body, the semiconductor switch, the temperature sensor, and the charge carrier detector) and requires the prescribed interrelationship as described in the claims. Yamaguchi lacks a teaching of these four elements and thus cannot anticipate the present invention. The present invention's use of all of these elements presents an advantageous architecture and functionality over the
20 invention disclosed by Yamaguchi.

For this reason, Applicants believes that an element required by claim 1 is not found in Yamaguchi and thus Yamaguchi cannot be said to anticipate the present invention. Since all remaining claims depend from claim 1, Applicants respectfully request that the §102 rejection be withdrawn from the present application.

35 U.S.C. §103, Claims 1-9 Obviousness over Yamaguchi in View of Roth

3. *The combination of Yamaguchi and Roth does not teach or suggest a first signal provided by the temperature sensor and a second signal provided by the charge carrier detector as required by claim 1.*

5 As previously argued, the combination of Yamaguchi and Roth does not obviate the present invention for the reasons argued above with respect to Yamaguchi, and because Roth does not provide a teaching or suggestion for providing a second signal provided by the charge carrier detector. Applicants do not disagree with the Examiner that the Roth reference teaches the well-known use of
10 an exclusive-or logic gate. However, a significant feature of the invention as claimed in claim 1 is providing the two signals from the device, with the first signal originating from the temperature sensor and the second signal originating from the charge carrier detector, the charge carrier detector being a separate element from the semiconductor switch. This architecture provides structural and functional
15 advantages that are not taught or suggested by Yamaguchi and Roth, either alone or in combination.

For these reasons, Applicants assert that the claim language clearly distinguishes over the prior art, and respectfully request that the Examiner withdraw the §103(a) rejection from the present application.

20 ***Non finality of next office action requested***


Since the Examiner conceded introduced a new ground of rejection during the telephone interview, i.e., that claim 1 was rejected by an interpretation of Yamaguchi with respect to Fig. 4B, as opposed to Fig. 4A (as indicated in the Office Action) that was not necessitated by Applicant's amendment of the claims, pursuant
25 to MPEP §706.07(a) Applicant respectfully requests that if the next office action is a

rejection, that it be non-final to permit a response to these new arguments of the Examiner.

CONCLUSION


Inasmuch as each of the rejections have been overcome by the arguments presented, and all of the Examiner's suggestions and requirements have been satisfied, it is respectfully requested that the present application be reconsidered, the rejections be withdrawn and that this application be passed to issue.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on August 29, 2002.


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